I CLAIM

1.An architecture for Converged Broadband Wireless Communications CHARACTERIZED BY:

(1) a converged wireless terminal comprising:

(a) a block radio-frequency and intermediate-frequency and digital broadband transceiver for converting between the base-band signal and the radio frequency, and

(b) a block base-band signal and control signal processing engine for processing various wireless algorithms and protocols, and

(c) a Common Air Interface Basic Input/Output System (CAI-BIOS) for the mapping and controlling of different wireless air-interfaces (wireless standards) to the said broadband transceiver and the said processing engine, and

(d) a SIM (Smart Integrated Memory) card or Memory Stick for the loading of different air interfaces and their software modules to the said CAI-BIOS

(2) a Common Access Point (CAP) comprising:

(a) a block radio-frequency and smart antennas and broadband transceiver for converting between the base-band signal and the radio frequency, and

(b) a block base-band signal and control signal processing engine for processing various wireless algorithms and protocols, and

(c) a Common Air Interface Basic Input/Output System (CAI-BIOS) for the mapping and controlling of different wireless air-interfaces (wireless standards) to the said broadband transceiver and the said processing engine, and

(d) a group of software modules providing various air interfaces (wireless standards) to the said CAI-BIOS, and

(e) a block network interface unit for connecting to the backbone wireline networks.

(3) An All-IP (Internet Protocol) Packet Division Multiplex (PDM) backbone or core network comprising:

(a) Any conventional or future PDM network, or
(b) Any public or private PDM network.

2. The architecture for Converged Broadband Wireless Communications of claim 1 wherein:

said Common Access Point supports any network interfaces (for example, Fiber Optic, ATM, Ethernet, Digital Subscriber Line, Cable, etc) to the said PDM backbone network through wireline link;
said Common Access Point supports any air interfaces (for example, GSM/GPRS, W-CDMA, UMTS, IEEE 802.11, 802.15, 802.16 and Wireless Local Loop, etc) to the said converged wireless terminal through wireless air link;
said converged wireless terminal supports any said air interfaces to the said common access point through wireless air link.

3. The architecture for Converged Broadband Wireless Communications of claim 1 wherein:

said converged wireless terminal and said common access point are all open function units and can be reconfigurable, programmable and software definable;
said converged wireless terminal and said common access point can automatically or manually run in any of the said air interfaces subject to the service availability;
said common access point can automatically or manually run in any of the said network interfaces subject to the service availability.

4. The architecture for Converged Broadband Wireless Communications of claim 1 wherein:

said converged wireless terminal and said common access point are communicating through All-IP end-to-end direct signaling and protocol;

said converged wireless terminal and said common access point support integrated services of voice, data and video over All-IP protocol and signaling.

5. The architecture for Converged Broadband Wireless Communications of claim 1 wherein:

said CAI-BIOS performs the mapping and controlling between said different air interfaces and the said open base-band / control processing engine, the said broadband transceiver as well as the said radio frequency unit;
said CAI-BIOS is the key unit of the said converged wireless terminal and the said common access point;
said CAI-BIOS provides information on said air interfaces including necessary transmission parameters, modulation parameters, channel parameters, access control parameters, dynamic bandwidth allocation parameters and other specific air interface parameters.

6. The architecture for Converged Broadband Wireless Communications of claim 2 wherein:

said air interfaces modules in said common access point can be stored in said common access point disks or uploaded from the said PDM backbone networks or uploaded from other remote networks;
said air interfaces modules in said converged wireless terminal can be loaded in said SIM card or memory stick.

7. The architecture for Converged Broadband Wireless Communications of claim 1 wherein:

said IP means any version of Internet Protocol or its future development of packet-oriented protocol.

8. A sample product of said converged wireless terminal CHARACTERIZED BY:

(a) Air Interfaces Options (automatically or manually), and
(b) Security (finger print, etc), and

(c) Information recognition (voice recognition, pattern recognition, etc)

(d) Bandwidth on Demand (Quality of Service Centric)

(e) SIM card or memory stick